Date of Revision: 20 Nov 2019

CURRICULUM VITAE

A. BIOGRAPHICAL INFORMATION

1. PERSONAL

Miriam Diamond
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2. DEGREES

PhD, Physics (Experimental High-Energy Particle)
2017, University of Toronto
Thesis Title: Searching for Dark Photons using Lepton-Jets at the ATLAS Detector
Advisor: William Trischuk

MSc, Physics (Perimeter Scholars International)
2013, University of Waterloo
Thesis Title: New Applications of Electron Beam-Dumps: Dark Matter at the SLAC Millicharge Search
Advisor: Philip Schuster

BSc Honours, Physics (Theory), 2012
Carleton University (Ottawa, Ontario)

3. EMPLOYMENT

University of Toronto
Assistant Professor of Astroparticle Physics, Department of Physics
Supported by Arthur B McDonald Canadian Astroparticle Physics Research Institute
Jan 2019 - present

SLAC National Accelerator Laboratory (Menlo Park, California)
Experimental Research Associate, Fundamental Physics Directorate
Supported by NSERC Post-Doctoral Fellowship
June 2017 – Nov 2018

University of Toronto
Research & Teaching Assistant, Department of Physics
Sept 2013 – March 2017

Institute for Quantum Computing (Waterloo, Ontario)
Research Intern
Summer 2011

Carleton University (Ottawa, Ontario)
Research Intern
Summers 2007-2010

4. HONOURS

- Breakthrough Prize in Fundamental Physics (as SNO Collaboration member), 2016
- National Sciences and Engineering Research Council of Canada, Alexander Graham Bell Canada Graduate Scholarship (Masters Level), 2012-2013
- Senate Medal, Carleton University, 2012
- National Sciences and Engineering Research Council of Canada, Undergraduate Student Research Award, 2009, 2010

- Province of Ontario Queen Elizabeth II Aiming for the Top Scholarship, 2007 – 2011
- Deans' Honour List, Carleton University, 2007 – 2011
- C.A.B. Betts Memorial Scholarship, Carleton University, 2010
- E.P. Hincks Memorial Scholarship, Carleton University, 2009
- Donald R. Wiles Entrance Scholarship, Carleton University, 2007

5. PROFESSIONAL AFFILIATIONS AND ACTIVITIES

P.Phys. (Professional Physicist) designation from Canadian Association of Physicists, since Nov 2015

SuperCDMS (Cryogenic Dark Matter Search) Collaboration member, since 2018

MATHUSLA (MAssive Timing Hodoscope for Ultra-Stable neutraL pArticles) Collaboration member, since 2018

HPS (Heavy Photon Search) Collaboration member, since 2017

B. ACADEMIC HISTORY

6. A. RESEARCH ENDEAVOURS

Current:

- SuperCDMS: Low-mass dark matter searches, data acquisition, data quality monitoring and analysis, software framework, Simulations Group Deputy Chair
- MATHUSLA: data acquisition system design
- Heavy Photon Search: Silicon Vertex Tracker data acquisition and reconstruction software, data analysis for bump-hunt and displaced vertex searches

Past:

- LHC (Large Hadron Collider) ATLAS experimental collider physics: analyses of prompt and displaced lepton-jets for Exotics neutral long-lived particle searches, Exotics Liaison for Large-Radius Tracking initiative, implementation of tracking algorithms for Diamond Beam Monitors, Beam Conditions Monitor expert on-site at CERN, calibration of liquid argon forward calorimeters based on early data
- Dark Photon Phenomenology: use of electron beam-dump experiments to constrain dark photon models with a new U(1) vector boson kinetically mixing with the photon
- Two-Higgs-Doublet Phenomenology: analysis strategies and discovery potential for 2HDM+Scalar models in the context of dark matter searches
- Experimental Quantum Information Processing: performance assessments of SQUIDs (Superconducting Quantum Interference Devices)
- Experimental Neutrino Astrophysics: SNO (Sudbury Neutrino Observatory) Collaboration searches for correlations between exotic astrophysical phenomena and observed neutrino fluxes

B. RESEARCH AWARDS for preceding 5 years

- National Sciences and Engineering Research Council of Canada, Post-Doctoral Fellowship, ($90000), 2017-2018
- Seymour H. Vosko Memorial Prize, University of Toronto ($1525), 2016
- National Sciences and Engineering Research Council of Canada, Alexander Graham Bell Canada Graduate Scholarship (PhD Level, $105000), 2013-2016
  Michael Smith Foreign Study Supplement ($6000), 2016

C. SCHOLARLY AND PROFESSIONAL WORK

7. REFEREED PUBLICATIONS

A. ARTICLES

Over 350 journal publications as an ATLAS Collaboration joint author since Jan 2015

[1] M. Aaboud *et al.* [ATLAS Collaboration], "Observation of $H \to b\bar{b}$ decays and VH production with the ATLAS detector," Phys. Lett. B **786**, 59 (2018) doi:10.1016/j.physletb.2018.09.013 [arXiv:1808.08238 [hep-ex]].

[2] M. Aaboud *et al.* [ATLAS Collaboration], "Combination of searches for heavy resonances decaying into bosonic and leptonic final states using 36 fb^{-1} of proton-proton collision data at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. D **98**, 052008 (2018) doi:10.1103/PhysRevD.98.052008 [arXiv:1808.02380 [hep-ex]].

[3] M. Aaboud *et al.* [ATLAS Collaboration], "Constraints on off-shell Higgs boson production and the Higgs boson total width in $ZZ \to 4\ell$ and $ZZ \to 2\ell 2\nu$ final states with the ATLAS detector," Phys. Lett. B **786**, 223 (2018) doi:10.1016/j.physletb.2018.09.048 [arXiv:1808.01191 [hep-ex]].

[4] M. Aaboud *et al.* [ATLAS Collaboration], "Search for Higgs bosons produced via vector-boson fusion and decaying into bottom quark pairs in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," Phys. Rev. D **98**, no. 5, 052003 (2018) doi:10.1103/PhysRevD.98.052003 [arXiv:1807.08639 [hep-ex]].

[5] M. Aaboud *et al.* [ATLAS Collaboration], "Search for charged Higgs bosons decaying via $H^{\pm} \to \tau^{\pm}\nu_{\tau}$ in the τ+jets and τ+lepton final states with 36 fb^{-1} of pp collision data recorded at $\sqrt{s} = 13$ TeV with the ATLAS experiment," JHEP **1809**, 139 (2018) doi:10.1007/JHEP09(2018)139 [arXiv:1807.07915 [hep-ex]].

[6] M. Aaboud *et al.* [ATLAS Collaboration], "Prompt and non-prompt J/ψ elliptic flow in Pb+Pb collisions at $\sqrt{s_{\rm NN}} =$ 5.02 Tev with the ATLAS detector," Eur. Phys. J. C **78**, no. 9, 784 (2018) doi:10.1140/epjc/s10052-018-6243-9 [arXiv:1807.05198 [nucl-ex]].

[7] M. Aaboud *et al.* [ATLAS Collaboration], "Searches for exclusive Higgs and Z boson decays into $J/\psi\gamma$, $\psi(2S)\gamma$, and $\Upsilon(nS)\gamma$ at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Lett. B **786**, 134 (2018) doi:10.1016/j.physletb.2018.09.024 [arXiv:1807.00802 [hep-ex]].

[8] M. Aaboud *et al.* [ATLAS Collaboration], "Search for the Higgs boson produced in association with a vector boson and decaying into two spin-zero particles in the $H \to aa \to 4b$ channel in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **1810**, 031 (2018) doi:10.1007/JHEP10(2018)031 [arXiv:1806.07355 [hep-ex]].

[9] M. Aaboud *et al.* [ATLAS Collaboration], "Probing the quantum interference between singly and doubly resonant top-quark production in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. Lett. **121**, no. 15, 152002 (2018) doi:10.1103/PhysRevLett.121.152002 [arXiv:1806.04667 [hep-ex]].

[10] M. Aaboud *et al.* [ATLAS Collaboration], "Search for pair production of heavy vector-like quarks decaying into high-p_T W bosons and top quarks in the lepton-plus-jets final state in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **1808**, 048 (2018) doi:10.1007/JHEP08(2018)048 [arXiv:1806.01762 [hep-ex]].

[11] M. Aaboud *et al.* [ATLAS Collaboration], "Observation of Higgs boson production in association with a top quark pair at the LHC with the ATLAS detector," Phys. Lett. B **784**, 173 (2018) doi:10.1016/j.physletb.2018.07.035 [arXiv:1806.00425 [hep-ex]].

[12] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of the Higgs boson mass in the $H \to ZZ^* \to 4\ell$ and $H \to \gamma\gamma$ channels with $\sqrt{s} = 13$ TeV pp collisions using the ATLAS detector," Phys. Lett. B **784**, 345 (2018) doi:10.1016/j.physletb.2018.07.050 [arXiv:1806.00242 [hep-ex]].

[13] M. Aaboud *et al.* [ATLAS Collaboration], "Search for new phenomena using the invariant mass distribution of same-flavour opposite-sign dilepton pairs in events with missing transverse momentum in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," Eur. Phys. J. C **78**, no. 8, 625 (2018) doi:10.1140/epjc/s10052-018-6081-9 [arXiv:1805.11381 [hep-ex]].

[14] M. Aaboud *et al.* [ATLAS Collaboration], "Combined measurement of differential and total cross sections in the $H \to \gamma\gamma$ and the $H \to ZZ^* \to 4\ell$ decay channels at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Lett. B **786**, 114 (2018) doi:10.1016/j.physletb.2018.09.019 [arXiv:1805.10197 [hep-ex]].

[15] M. Aaboud *et al.* [ATLAS Collaboration], "Search for resonances in the mass distribution of jet pairs with one or two jets identified as b-jets in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. D **98**, 032016 (2018) doi:10.1103/PhysRevD.98.032016 [arXiv:1805.09299 [hep-ex]].

[16] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of jet fragmentation in Pb+Pb and pp collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ATLAS detector," Phys. Rev. C **98**, no. 2, 024908 (2018) doi:10.1103/PhysRevC.98.024908 [arXiv:1805.05424 [nucl-ex]].

[17] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of the suppression and azimuthal anisotropy of muons from heavy-flavor decays in Pb+Pb collisions at $\sqrt{s_{\rm NN}} = 2.76$ TeV with the ATLAS detector," Phys. Rev. C **98**, no. 4, 044905 (2018) doi:10.1103/PhysRevC.98.044905 [arXiv:1805.05220 [nucl-ex]].

[18] M. Aaboud *et al.* [ATLAS Collaboration], "Search for flavor-changing neutral currents in top quark decays $t \to Hc$ and $t \to Hu$ in multilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. D **98**, no. 3, 032002 (2018) doi:10.1103/PhysRevD.98.032002 [arXiv:1805.03483 [hep-ex]].

[19] M. Aaboud *et al.* [ATLAS Collaboration], "Angular analysis of $B^0_d \to K^* \mu^+ \mu^-$ decays in pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector," JHEP **1810**, 047 (2018) doi:10.1007/JHEP10(2018)047 [arXiv:1805.04000 [hep-ex]].

[20] M. Aaboud *et al.* [ATLAS Collaboration], "Prompt and non-prompt J/ψ and ψ(2S) suppression at high transverse momentum in 5.02 TeV Pb+Pb collisions with the ATLAS experiment," Eur. Phys. J. C **78**, no. 9, 762 (2018) doi:10.1140/epjc/s10052-018-6219-9 [arXiv:1805.04077 [nucl-ex]].

[21] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of colour flow using jet-pull observables in $t\bar{t}$ events with the ATLAS experiment at $\sqrt{s} = 13$ TeV," Eur. Phys. J. C **78**, no. 10, 847 (2018) doi:10.1140/epjc/s10052-018-6290-2 [arXiv:1805.02935 [hep-ex]].

[22] M. Aaboud *et al.* [ATLAS Collaboration], "Search for supersymmetry in final states with charm jets and missing transverse momentum in 13 TeV pp collisions with the ATLAS detector," JHEP **1809**, 050 (2018) doi:10.1007/JHEP09(2018)050 [arXiv:1805.01649 [hep-ex]].

[23] M. Aaboud *et al.* [ATLAS Collaboration], "Search for heavy resonances decaying to a photon and a hadronically decaying $Z/W/H$ boson in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. D **98**, no. 3, 032015 (2018) doi:10.1103/PhysRevD.98.032015 [arXiv:1805.01908 [hep-ex]].

[24] M. Aaboud *et al.* [ATLAS Collaboration], "Measurements of b-jet tagging efficiency with the ATLAS detector using $t\bar{t}$ events at $\sqrt{s} = 13$ TeV," JHEP **1808**, 089 (2018) doi:10.1007/JHEP08(2018)089 [arXiv:1805.01845 [hep-ex]].

[25] M. Aaboud *et al.* [ATLAS Collaboration], "Search for heavy particles decaying into top-quark pairs using lepton-plus-jets events in protonproton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Eur. Phys. J. C **78**, no. 7, 565 (2018) doi:10.1140/epjc/s10052-018-5995-6 [arXiv:1804.10823 [hep-ex]].

[26] M. Aaboud *et al.* [ATLAS Collaboration], "Search for R-parity-violating supersymmetric particles in multi-jet final states produced in p-p collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector at the LHC," Phys. Lett. B **785**, 136 (2018) doi:10.1016/j.physletb.2018.08.021 [arXiv:1804.03568 [hep-ex]].

[27] M. Aaboud *et al.* [ATLAS Collaboration], "Search for supersymmetry in events with four or more leptons in $\sqrt{s} = 13$ TeV pp collisions with ATLAS," Phys. Rev. D **98**, no. 3, 032009 (2018) doi:10.1103/PhysRevD.98.032009 [arXiv:1804.03602 [hep-ex]].

[28] M. Aaboud *et al.* [ATLAS Collaboration], "Search for low-mass dijet resonances using trigger-level jets with the ATLAS detector in pp collisions at $\sqrt{s} = 13$ TeV," Phys. Rev. Lett. **121**, no. 8, 081801 (2018) doi:10.1103/PhysRevLett.121.081801 [arXiv:1804.03496 [hep-ex]].

[29] M. Aaboud *et al.* [ATLAS Collaboration], "Search for a heavy Higgs boson decaying into a Z boson and another heavy Higgs boson in the $\ell\ell bb$ final state in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Lett. B **783**, 392 (2018) doi:10.1016/j.physletb.2018.07.006 [arXiv:1804.01126 [hep-ex]].

[30] M. Aaboud *et al.* [ATLAS Collaboration], "Search for Higgs boson decays into pairs of light (pseudo)scalar particles in the $\gamma\gamma jj$ final state in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Lett. B **782**, 750 (2018) doi:10.1016/j.physletb.2018.06.011 [arXiv:1803.11145 [hep-ex]].

[31] M. Aaboud *et al.* [ATLAS Collaboration], "Search for top squarks decaying to tau sleptons in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. D **98**, no. 3, 032008 (2018) doi:10.1103/PhysRevD.98.032008 [arXiv:1803.10178 [hep-ex]].

[32] M. Aaboud *et al.* [ATLAS Collaboration], "Search for flavour-changing neutral current top-quark decays $t \to qZ$ in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **1807**, 176 (2018) doi:10.1007/JHEP07(2018)176 [arXiv:1803.09923 [hep-ex]].

[33] M. Aaboud *et al.* [ATLAS Collaboration], "Search for pair production of up-type vector-like quarks and for four-top-quark events in final states with multiple b-jets with the ATLAS detector," JHEP **1807**, 089 (2018) doi:10.1007/JHEP07(2018)089 [arXiv:1803.09678 [hep-ex]].

[34] M. Aaboud *et al.* [ATLAS Collaboration], "Search for the Decay of the Higgs Boson to Charm Quarks with the ATLAS Experiment," Phys. Rev. Lett. **120**, no. 21, 211802 (2018) doi:10.1103/PhysRevLett.120.211802 [arXiv:1802.04329 [hep-ex]].

[35] M. Aaboud *et al.* [ATLAS Collaboration], "Measurements of Higgs boson properties in the diphoton decay channel with 36 fb^{-1} of pp collision data at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. D **98**, 052005 (2018) doi:10.1103/PhysRevD.98.052005 [arXiv:1802.04146 [hep-ex]].

[36] M. Aaboud *et al.* [ATLAS Collaboration], "Search for Higgs boson decays to beyond-the-Standard-Model light bosons in four-lepton events with the ATLAS detector at $\sqrt{s} = 13$ TeV," JHEP **1806**, 166 (2018) doi:10.1007/JHEP06(2018)166 [arXiv:1802.03388 [hep-ex]].

[37] M. Aaboud *et al.* [ATLAS Collaboration], "Search for photonic signatures of gauge-mediated supersymmetry in 13 TeV pp collisions with the ATLAS detector," Phys. Rev. D **97**, no. 9, 092006 (2018) doi:10.1103/PhysRevD.97.092006 [arXiv:1802.03158 [hep-ex]].

[38] M. Aaboud *et al.* [ATLAS Collaboration], "Search for a Structure in the $B_s^0\pi^\pm$ Invariant Mass Spectrum with the ATLAS Experiment," Phys. Rev. Lett. **120**, no. 20, 202007 (2018) doi:10.1103/PhysRevLett.120.202007 [arXiv:1802.01840 [hep-ex]].

[39] M. Aaboud *et al.* [ATLAS Collaboration], "Search for $W' \to tb$ decays in the hadronic final state using pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Lett. B **781**, 327 (2018) doi:10.1016/j.physletb.2018.03.036 [arXiv:1801.07893 [hep-ex]].

[40] M. Aaboud *et al.* [ATLAS Collaboration], "Search for High-Mass Resonances Decaying to $\tau\nu$ in pp Collisions at $\sqrt{s}$=13TeV with the ATLAS Detector," Phys. Rev. Lett. **120**, no. 16, 161802 (2018) doi:10.1103/PhysRevLett.120.161802 [arXiv:1801.06992 [hep-ex]].

[41] M. Aaboud *et al.* [ATLAS Collaboration], "Measurements of $t\bar{t}$ differential cross-sections of highly boosted top quarks decaying to all-hadronic final states in pp collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector," Phys. Rev. D **98**, no. 1, 012003 (2018) doi:10.1103/PhysRevD.98.012003 [arXiv:1801.02052 [hep-ex]].

[42] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of the cross section for isolated-photon plus jet production in pp collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector," Phys. Lett. B **780**, 578 (2018) doi:10.1016/j.physletb.2018.03.035 [arXiv:1801.00112 [hep-ex]].

[43] M. Aaboud *et al.* [ATLAS Collaboration], "Search for the standard model Higgs boson produced in association with top quarks and decaying into a $b\bar{b}$ pair in pp collisions at $\sqrt{s} = 13$TeV with the ATLAS detector," Phys. Rev. D **97**, no. 7, 072016 (2018) doi:10.1103/PhysRevD.97.072016 [arXiv:1712.08895 [hep-ex]].

[44] M. Aaboud *et al.* [ATLAS Collaboration], "Evidence for the associated production of the Higgs boson and a top quark pair with the ATLAS detector," Phys. Rev. D **97**, no. 7, 072003 (2018) doi:10.1103/PhysRevD.97.072003 [arXiv:1712.08891 [hep-ex]].

[45] M. Aaboud *et al.* [ATLAS Collaboration], "Search for electroweak production of supersymmetric states in scenarios with compressed mass spectra at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. D **97**, no. 5, 052010 (2018) doi:10.1103/PhysRevD.97.052010 [arXiv:1712.08119 [hep-ex]].

[46] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of the production cross section of three isolated photons in pp collisions at $\sqrt{s} = 8$ TeV using the ATLAS detector," Phys. Lett. B **781**, 55 (2018) doi:10.1016/j.physletb.2018.03.057 [arXiv:1712.07291 [hep-ex]].

[47] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of the inclusive and fiducial $t\bar{t}$ production cross-sections in the lepton+jets channel in pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector," Eur. Phys. J. C **78**, 487 (2018) doi:10.1140/epjc/s10052-018-5904-z [arXiv:1712.06857 [hep-ex]].

[48] M. Aaboud *et al.* [ATLAS Collaboration], "Search for heavy resonances decaying into a W or Z boson and a Higgs boson in final states with leptons and b-jets in 36 fb^{-1} of $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," JHEP **1803**, 174 (2018) doi:10.1007/JHEP03(2018)174 [arXiv:1712.06518 [hep-ex]].

[49] M. Aaboud *et al.* [ATLAS Collaboration], "Search for heavy ZZ resonances in the $\ell^+\ell^-\ell^+\ell^-$ and $\ell^+\ell^-\nu\bar{\nu}$ final states using protonproton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Eur. Phys. J. C **78**, no. 4, 293 (2018) doi:10.1140/epjc/s10052-018-5686-3 [arXiv:1712.06386 [hep-ex]].

[50] M. Aaboud *et al.* [ATLAS Collaboration], "Search for exclusive Higgs and Z boson decays to $\phi\gamma$ and $\rho\gamma$ with the ATLAS detector," JHEP **1807**, 127 (2018) doi:10.1007/JHEP07(2018)127 [arXiv:1712.02758 [hep-ex]].

[51] M. Aaboud *et al.* [ATLAS Collaboration], "Search for squarks and gluinos in final states with jets and missing transverse momentum using 36fb^{-1} of $\sqrt{s} = 13$TeV pp collision data with the ATLAS detector," Phys. Rev. D **97**, no. 11, 112001 (2018) doi:10.1103/PhysRevD.97.112001 [arXiv:1712.02332 [hep-ex]].

[52] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of the Higgs boson coupling properties in the $H \to ZZ^* \to 4\ell$ decay channel at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **1803**, 095 (2018) doi:10.1007/JHEP03(2018)095 [arXiv:1712.02304 [hep-ex]].

[53] M. Aaboud *et al.* [ATLAS Collaboration], "Search for long-lived charginos based on a disappearing-track signature in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **1806**, 022 (2018) doi:10.1007/JHEP06(2018)022 [arXiv:1712.02118 [hep-ex]].

[54] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of differential cross-sections of a single top quark produced in association with a W boson at $\sqrt{s} = 13$ TeV with ATLAS," Eur. Phys. J. C **78**, no. 3, 186 (2018) doi:10.1140/epjc/s10052-018-5649-8 [arXiv:1712.01602 [hep-ex]].

[55] M. Aaboud *et al.* [ATLAS Collaboration], "Search for top-squark pair production in final states with one lepton, jets, and missing transverse momentum using 36 fb[1] of $\sqrt{s} = 13$ TeV pp collision data with the ATLAS detector," JHEP **1806**, 108 (2018) doi:10.1007/JHEP06(2018)108 [arXiv:1711.11520 [hep-ex]].

[56] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of the Soft-Drop Jet Mass in pp Collisions at $\sqrt{s} = 13$TeV with the ATLAS Detector," Phys. Rev. Lett. **121**, no. 9, 092001 (2018) doi:10.1103/PhysRevLett.121.092001 [arXiv:1711.08341 [hep-ex]].

[57] M. Aaboud *et al.* [ATLAS Collaboration], "Search for dark matter and other new phenomena in events with an energetic jet and large missing transverse momentum using the ATLAS detector," JHEP **1801**, 126 (2018) doi:10.1007/JHEP01(2018)126 [arXiv:1711.03301 [hep-ex]].

[58] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of differential cross sections and W^+/W^- cross-section ratios for W boson production in association with jets at $\sqrt{s} = 8$ TeV with the ATLAS detector," JHEP **1805**, 077 (2018) doi:10.1007/JHEP05(2018)077 [arXiv:1711.03296 [hep-ex]].

[59] M. Aaboud *et al.* [ATLAS Collaboration], "Measurement of inclusive jet and dijet cross-sections in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **1805**, 195 (2018) doi:10.1007/JHEP05(2018)195 [arXiv:1711.02692 [hep-ex]].

[60] M. Aaboud *et al.* [ATLAS Collaboration], "Search for supersymmetry in final states with missing transverse momentum and multiple b-jets in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **1806**, 107 (2018) doi:10.1007/JHEP06(2018)107 [arXiv:1711.01901 [hep-ex]].

[61] M. Aaboud *et al.* [ATLAS Collaboration], "Search for dark matter produced in association with bottom or top quarks in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," Eur. Phys. J. C **78**, no. 1, 18 (2018) doi:10.1140/epjc/s10052-017-5486-1 [arXiv:1710.11412 [hep-ex]].

[62] M. Aaboud *et al.* [ATLAS Collaboration], "Search for doubly charged Higgs boson production in multi-lepton final states with the ATLAS detector using protonproton collisions at $\sqrt{s} = 13$ TeV," Eur. Phys. J. C **78**, no. 3, 199 (2018) doi:10.1140/EPJC/S10052-018-5661-Z, 10.1140/epjc/s10052-018-5661-z [arXiv:1710.09748 [hep-ex]].

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[64] M. Aaboud *et al.* [ATLAS Collaboration], "Search for WW/WZ resonance production in $\ell\nu qq$ final states in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **1803**, 042 (2018) doi:10.1007/JHEP03(2018)042 [arXiv:1710.07235 [hep-ex]].

[65] M. Aaboud *et al.* [ATLAS Collaboration], "A search for pair-produced resonances in four-jet final states at $\sqrt{s} =$ 13 TeV with the ATLAS detector," Eur. Phys. J. C **78**, no. 3, 250 (2018) doi:10.1140/epjc/s10052-018-5693-4 [arXiv:1710.07171 [hep-ex]].

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Primary authorship:

M. Diamond and P. Schuster, "Searching for Light Dark Matter with the SLAC Millicharge Experiment", *Phys. Rev. Lett.* **111** (2013) 221803 [arXiv:1307.6861].

SNO Collaboration, "A search for astrophysical burst signals at the Sudbury Neutrino Observatory", *Astropart. Phys.* **55** (2014) 1-7 [arXiV:1309.0910].

8. **NON-REFEREED PUBLICATIONS**

A. **ARTICLES**

Alimena et al., "Searching for long-lived particles beyond the Standard Model at the Large Hadron Collider", March 2019, 301 p. [arXiv:1903.04497].

Alpigiani et al., "A Letter of Intent for MATHUSLA: a dedicated displaced vertex detector above ATLAS or CMS", July 2018, 61 p. [arXiV:1811.00927].

9. **PUBLICATIONS IN PREPARATION**

N/A

10. **PAPERS PRESENTED AT MEETINGS AND SYMPOSIA**

M. Diamond, "Searches for Dark Sectors in Fixed-Target Experiments", *2019 CAP Congress*. https://indico.cern.ch/event/776181/contributions/3344433.

M. Diamond, "Searches for ultra long-lived particles with MATHUSLA", *The 29th International Symposium on Lepton Photon Interactions at High Energies*. PoS(LeptonPhoton2019)115, https://indico.cern.ch/event/688643/contributions/3444433.

M. Diamond and S. Paul, "Heavy Photon Search" (poster), *The 45th SLAC Summer Institute: Cosmic Opportunities 2017*.

M. Diamond, "Search for long-lived neutral particles decaying into lepton-jets with the ATLAS detector in proton-proton collision data" (poster), *The 3rd Workshop on Dark Matter at the Large Hadron Collider*. ATL-PHYS-SLIDE-2016-254, http://cds.cern.ch/record/2154813.

M. Diamond, "Search for long-lived neutral particles decaying into lepton-jets with the ATLAS Detector" (poster & proceedings), *Large Hadron Collider Physics 2016*. PoS(LHCP2016)240, ATL-PHYS-PROC-2016-121, http://cds.cern.ch/record/2211433.

M. Diamond, "Exotic Prompt and Non-Prompt Leptonic Decays as a Window to the Dark Sector with ATLAS" (presentation), *The 24th International Conference on Supersymmetry and Unification of Fundamental Interactions*. ATL-PHYS-SLIDE-2016-395, http://cds.cern.ch/record/2198690.

M. Diamond, "Searches with Displaced Lepton-Jet Signatures" (presentation), *LHC Searches for Long-Lived BSM Particles: Theory Meets Experiment 2015*.

M. Diamond, "Implementing Tracking with the ATLAS Diamond Beam Monitor" (presentation), *Canadian Association of Physicists Conference 2014*.

M. Diamond and H. Logan, **"**Exploring Dark Matter in a Lepton-Specific Two-Higgs-Doublet Model" (presentation), *Women in Physics 2011*.

11. **INVITED LECTURES**

"Searches for Ultra Long-Lived Particles with MATHUSLA", Particle physics seminar series, McGill University, Nov 12 2019

"Direct Detection Dark Matter Searches", Physics 10 lecture series (upper-year undergraduates), University of Waterloo Department of Physics & Astronomy, Feb 15 2019

"Dark Sectors in Electron Fixed-Target Experiments", Arthur B. McDonald Canadian Astroparticle Physics Research Institute seminar series, Queen's University, March 14 2019

D. **LIST OF COURSES**

12. A. **UNDERGRADUATE COURSES TAUGHT**

N/A

B. **GRADUATE COURSES TAUGHT**

N/A

C. **THESES SUPERVISED**

Masters Students (primary supervisor):

Shaghayegh Atashi, "Coherent Elastic Neutrino-Electron Scattering in SuperCDMS SNOLAB", Jan 2019 – Aug 2019

Doctoral Students (primary supervisor):

Imran Alkhatib, "Event Reconstruction for the SuperCDMS SNOLAB Experiment", April 2019 – ongoing

Amirata Sattari Javid, "Detector Simulations for the SuperCDMS SNOLAB Experiment", April 2019 – ongoing

Matthew Wilson, "Electron Recoil Dark Matter Analyses in SuperCDMS SNOLAB", Jan 2019 -- ongoing

Enze Zhang, "Data Quality Monitoring for the SuperCDMS SNOLAB Experiment", Jan 2019 – ongoing

D. **OTHER TEACHING AND LECTURES GIVEN (in preceding 5 years)**

- Tutorials Leader for PHY407 (Computational Physics, fourth-year undergraduate course), University of Toronto, Fall 2016
- Tutorials Leader for PHY231H (Physics of Living Systems, second-year undergraduate course), University of Toronto, Fall 2014, 2015
- Practicals Leader for PHY132H (Introduction to Physics II, first-year undergraduate course), University of Toronto, Winter 2014, 2015, 2016
- Outreach Lecturer for *Science Unlimited!* Summer Program, University of Toronto, Summer 2015, 2016

E. **ADMINISTRATIVE POSITIONS**

13. A. **POSITIONS HELD AND SERVICE ON COMMITTEES AND ORGANIZATIONS WITHIN THE UNIVERSITY**

- Physics Department Graduate Admissions Committee, 2019
- Physics Department Outreach Committee, 2019
- Physics Department Technical Services Committee, 2019
- High-Energy Particle Physics representative for Graduate Liaison Committee, Dept of Physics, 2015-2016
- Secretary of Physics Graduate Student Association, 2014-2015
- Advisor Physics Mentorship program, 2014-2016

B. **POSITIONS HELD AND SERVICE ON COMMITTEES AND ORGANIZATIONS OUTSIDE THE UNIVERSITY OF SCHOLARLY AND ACADEMIC SIGNIFICANCE**

- Member of Local Organizing Committee for Canadian Conference for Undergraduate Women in Physics, 2020
- Member of Scientific Management Committee, Arthur B. McDonald Canadian Astroparticle Physics Research Institute
- Member of Prioritization Board, NSERC MRS for Subatomic Physics
- Member of Local Organizing Committee for XXIX International Symposium on Lepton Photon Interactions at High Energies, 2019
- Coordinator of SLAC Fundamental Physics Directorate Experimental Seminars, 2018
- Member of Local Organizing Committee for Women In Physics Canada Conference, 2015

F. **OTHER RELEVANT INFORMATION**

- Completed THE500 (Teaching in Higher Education) course from University of Toronto Woodsworth College, Fall 2015
- Teaching Assistants' Training Program: Teaching Fundamentals certificate from University of Toronto Centre for Teaching Support & Innovation, Fall 2014
- MiniMBA certificate from University of Toronto Graduate Management Consulting Association, 2016
- Graduate Professional Skills certificate from University of Toronto School of Graduate Studies, 2015

- Attended SLAC Summer Institute: Cosmic Opportunities, Aug 2017
- Attended Hadron Collider Physics Summer School at Fermilab, Aug 2014
- Attended Undergraduate School in Experimental Quantum Information Processing at the Institute for Quantum Computing in Waterloo, June 2011

- Bilingual (English & French)